

### **REMARKS**

Claims 20, 21 and 31 have been amended and claims 41-50 have been added. Claims 1-50 are pending in the application. Reconsideration of the application is requested in view of the amendments and the remarks to follow.

**Allowable Subject Matter And Rejections Under 35 U.S.C. §112, 2<sup>ND</sup> ¶:**

Claims 21, 22 and 31 are stated (p. 7, item 13) to be allowable if re-written to overcome the rejection under 35 U.S.C. §112 and to include the recitation of the base claim and any intervening claims. However, claims 20, 21 and 31 stand rejected under 35 U.S.C. §112 (p. 2, item 4).

Accordingly, Applicant believes that what had been intended was to indicate that claims 20, 21, and 31 are allowable and has amended these claims in accordance with that interpretation, and the rejection under 35 U.S.C. §112, 2<sup>ND</sup> ¶, has been overcome. As such, claims 20, 21 and 31 are allowable.

**Art Rejections:**

Claims 1, 2, 9, 32, 33, 36 and 37 stand rejected under 35 U.S.C. §102(b) as being anticipated by Inside Macintosh (QuickDraw GX Environment and Utilities, Chs. 2 and 3), hereinafter "IM". Claims 3-6, 8, 10-13, 15, 35 and 39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over IM. Claims 7, 14, 16-19 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over IM in view of Draves et al., U.S. Patent No. 5,950,221 (hereinafter "Draves"). Claims 23-28 and 30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over IM in view of Culbert et al., U.S. Patent No. 5,696,926 (hereinafter "Culbert"). Claims 34, 38 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over IM in view of Berstis et al., U.S. Patent No. 5,909,215 (hereinafter "Berstis"). Claim 29 stands rejected under 35 U.S.C. §103(a) as being unpatentable over IM in view of Culbert and Draves. Applicant traverses and requests reconsideration.

Applicant notes that no copy of Ch. 3 of IM was included with the Office Action dated April 3, 2003. Accordingly, Applicant requested a copy of the reference being applied. A Supplemental Office Action dated April 22, 2003 was sent by the Office which stated that a copy of Ch. 3 of IM was included and that the period for response was restarted. No such copy was enclosed with the Supplemental Action received by Applicant. While such a copy was received together with another Supplemental Action dated May 27, 2003, Applicant had by that time independently obtained a copy of the reference. A copy of that material is enclosed herewith to ensure that pagination etc. is mutually understood. A copy of Ch. 1 of IM is also enclosed herewith.

### **35 U.S.C. § 102; Anticipation:**

Anticipation is a legal term of art. Applicant notes that in order to provide a valid finding of anticipation, several conditions must be met: (i) the reference must include every element of the claim within the four corners of the reference (see MPEP §2121); (ii) the elements must be set forth as they are recited in the claim (see MPEP §2131); (iii) the teachings of the reference cannot be modified (see MPEP §706.02, stating that "No question of obviousness is present" in conjunction with anticipation); and (iv) the reference must enable the invention as recited in the claim (see MPEP §2121.01). Additionally, (v) these conditions must be simultaneously satisfied.

The §102 rejection of claims 1, 2, 9, 32, 33, 36 and 37 is believed to be in error. Specifically, the PTO and Federal Circuit provide that §102 anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990). The corollary of this rule is that the absence from a cited §102 reference of any claimed element negates the anticipation. *Kloster Speedsteel AB, et al. v. Crucible, Inc., et al.*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986).

No §103 rejection has been lodged regarding claims 1, 2, 9, 32, 33, 36 and 37. Accordingly, if Applicant can demonstrate that IM does not disclose any one claimed element with respect to claims 1, 2, 9, 32, 33, 36 and 37, the §102 rejections must be withdrawn, and a subsequent non-Final action made with a different rejection in the event that the Examiner still finds such claims to be not allowable.

IM describes an application program, QuickDraw GX, that can be used in the Macintosh Operating System environment (see, e.g., Ch. 1, p. 1-3). Most QuickDraw GX functions are designed for implementation on any platform ("The Macintosh Interface", p. 1-3) but some portions are specific to the Macintosh environment or operating system (Id.). As noted on p. 2-3 ("About QuickDraw GX Memory Management"), "QuickDraw GX works with the Macintosh Memory Manager to manage the memory used by our application for creating and manipulating objects." As noted on p. 2-4 ("Graphic Clients and Graphics Client Heaps"), "QuickDraw GX never deallocates graphics client heaps while they are in use." (p. 2-4, 7<sup>TH</sup> full ¶) .

IM discloses errors, warnings and notices that can be posted by QuickDraw GX functions (p. 3-3, first sentence). IM discloses descriptions of how a user can obtain such errors, warnings and notices, change the QuickDraw GX errors, warnings and notices, ignore the QuickDraw GX errors, warnings and notices, and install application-defined error, warning and notice handlers (bulleted list, middle of page 3-3).

Claim 1 recites " A method of controlling memory usage in a computer system having limited physical memory, wherein one or more application programs execute in conjunction with an operating system, the method comprising: setting a plurality of memory thresholds; and the operating system wielding, at increasingly critical memory thresholds, correspondingly increasing control over said one or more application programs to reduce memory usage", which is not taught or disclosed by IM.

QuickDraw GX is not an operating system. An operating system is a software product that defines basic operations of a computer and that provides an environment in which applications programs, such as graphics manipulation software, may be executed.

In other words, equating QuickDraw GX as described in IM to an operating system, as recited in claim 1, gives the term "operating system" a meaning repugnant to the ordinary meaning of the term. Such is improper, as is explained in more detail below with reference to MPEP §608.01(o), entitled "Basis for Claim Terminology in Description" (see also MPEP §2111.01).

MPEP §608.01 states that "The meaning of every term used in any of the claims should be apparent from the descriptive portion of the specification with clear disclosure as to its import; and in mechanical cases, it should be identified in the descriptive portion of the specification by reference to the drawing, designating the part or parts therein to which the term applies. A term used in the claims may be given a special meaning in the description. No term may be given a meaning repugnant to the usual meaning of the term."

Applicant's specification describes examples of operating systems (see p. 5, line 24 et seq.). For example, "An operating system 44, executed by processor 40, is resident in and utilizes memory 42. H/PC 20 preferably runs the Windows® CE operating system from Microsoft Corporation. This operating system is a derivative of Windows® brand operating systems, such as Windows® 95, that is especially designed for handheld computing devices." Applicant's specification also teaches, for example, that "The Windows® CE operating system is a multitasking operating system that allows simultaneous execution of multiple

applications 45. The operating system employs a graphical user interface windowing environment that presents applications and documents in specially delineated areas of the display screen called "windows." Each window can act independently, including its own menu, toolbar, pointers, and other controls, as if it were a virtual display device. It is noted, however, that the handheld computing device may be implemented with other types of operating systems." (p. 6, line 7 et seq.).

Put another way, one definition of an operating system is found at p. 279 of Microsoft Press Computer Dictionary, 2<sup>ND</sup> Ed., published by Microsoft Press, A division Of Microsoft Corporation, One Redmond Way, Redmond, Washington (copyright 1994). This definition is:

**operating system** Abbreviated OS; sometimes called the executive. The software responsible for controlling the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, disk space, and peripheral devices. The operating system is the foundation on which applications, such as word-processing and spreadsheet programs, are built. Popular operation systems include MS-DOS, the Macintosh OS, OS/2, Windows, Windows NT and UNIX.

In contrast, the same dictionary defines an application program at p. 23 as:

**application** A computer program designed to help people perform a certain type of work. An application thus differs from an operating system (which runs a computer), a utility (which performs maintenance or general-purpose chores), and a language (with which computer programs are created). Depending on the work for which it was designed, an application can manipulate text, numbers, graphics, or a combination of these elements. Some application packages offer considerable computing power by focusing on a single task, such as word processing; others, called integrated software, offer somewhat less power but include several applications, such as a word processor, a spreadsheet, and a database program.

As such, operating systems and applications are not equivalent. Equating QuickDraw GX described in IM to the operating system recited in claim 1 thus gives both of the terms "operating system" and "applications program" meanings repugnant to the ordinary meaning of these terms and is inconsistent with the descriptions of these terms as provided in Applicant's specification.

Claim 32 recites "A method of controlling memory usage in a computer system having limited physical memory, wherein one or more application programs execute in conjunction with an operating system, the method comprising: monitoring memory usage; and when memory usage is high, sending a message from the operating system to at least one of the application programs requesting the application program to reduce its current use of memory", which is not taught or disclosed by IM. As noted above, IM does not teach an operating system, as affirmatively recited in claim 32. IM also does not teach or disclose sending a message from the operating system to at least one of the application programs requesting the application program to reduce its current use of memory, as recited in claim 32.

Claim 37 recites "A computer-readable storage medium having instructions for controlling memory usage in a computer system having limited physical memory, wherein one or more application programs execute in conjunction with an operating system, the instructions being executable by the computer system to perform acts comprising: monitoring memory usage; and at a defined memory usage threshold, sending a message from the operating system to at least one of the application programs requesting the application program to reduce its current use of memory", which is not taught or disclosed by IM. As noted above, IM does



not teach instructions executable by a processor to monitor memory usage or send a message from the operating system to at least one of the application programs requesting that the application program reduce current memory use, as recited in claim 37.

The Office Action states (p. 3) that IM teaches the recitation of claims 1, 32 and 37 and points to various portions of IM, Ch. 3. However, as noted above, a valid finding of anticipation requires that the reference set forth the claim elements as they are set forth in the claim (item (ii)) and that these elements cannot be modified (item (iii)). Picking and choosing teachings from the reference is impermissible (see items (i) and (ii), *infra*) and constitutes impermissible modification of the teachings of the reference (see item (iii), *infra*). As a result, IM cannot enable the recitation of claims 1, 2 and 37 (see item (iv), *infra*). As such, the anticipation rejections are defective and should be withdrawn, and claims 1, 32 and 37 and claims dependent therefrom should be allowed.

The Office Action states (p. 3) that "As to claim 9, storing the instructions on a computer-readable storage medium would have been obvious." Similar language is provided with respect to claim 36 (p. 4). Such does not reflect anticipation and also fails to provide a *prima facie* case of unpatentability, as is discussed below in more detail with reference to the unpatentability rejections. As such, the rejection of claims 9 and 36 is defective and should be withdrawn, and claims 9 and 36 should be allowed.

**35 U.S.C. § 103; Unpatentability:**

Claim 10 recites "A computer-readable storage medium having instructions for controlling memory usage in a computer system having limited physical memory, wherein one or more application programs execute in conjunction with an operating system, the instructions being executable by the computer system to perform acts comprising: at a first memory usage threshold, requesting at least one of the application programs to close itself; and at a second memory usage threshold that is more critical than the first memory usage threshold, terminating at least one of the application programs without allowing its further execution", which is not taught, disclosed, suggested or motivated by IM.

The Office Action refers to the discussion of claims 1, 3 and 4 as formulating a basis for rejection of claim 10. As noted above, IM fails to anticipate the subject matter recited in claim 1. The rejection of claims 3 and 4 (p. 4) indicates that "IM shuts down an application when the application poses severe enough memory problem. Page 3-41." Applicant finds no such teaching on page 3-41. Clarification is requested.

Page 3-41 includes Figure 3-5, entitled "Enabling and disabling an error handler". Error handlers are described on the preceding page, for example, as user-developed and installed applications subprograms that respond to warnings and notices from QuickDraw GX.

The text on page 3-41 states that:

The handler should respond to the problems that occur during typical application scenarios. A friendly application should let the user know when it is taking action in response to errors and warnings that have occurred. For example, if an application runs out of memory and that it is responding in a particular manner to

alleviate the problem. If it cannot solve the problem, it may need to notify the user that it needs to abort processing. Such an application would need to install an error handler that looks for out\_of\_memory errors.

In general, in the non-debugging version of your application, the handler might be relatively simple. If the handler doesn't have a response to an error or warning, it should just return and continue execution.

In contrast, the debugging version of the handler may be relatively complex to accommodate special error, warning, and notice conditions. In general, you should stop and print the errors, warnings, and notices whenever a problem occurs.

An application can have more than one error handler. A simple application might have just one error handler to handle specific problems. However, a more complicated application may have multiple error handlers. For example, an application might have one error handler that takes care of memory problems and another error handler for other types of errors. The special error handler may be installed only when a particular type of processing is to occur, like animation or QuickTime movies.

This passage explicitly discusses error handlers that are a part of an application, and makes no mention or suggestion whatsoever of "requesting at least one of the application programs to close itself" at a first memory threshold, as affirmatively recited in claim 10. This passage also fails to suggest or motivate "terminating at least one of the application programs without allowing its further execution" at a second memory threshold, as affirmatively recited in claim 10. Notifying a user that a program may need to be shut down is not an equivalent to termination of a program without allowing further execution, as recited in claim 10. For at least these reasons, the rejection of claim 10 is defective and should be withdrawn, and claim 10 should be allowed.

Claim 17 recites "A method of controlling memory usage in a computer system having limited physical memory, wherein one or more application programs execute in conjunction with an operating system, the method comprising: at a first memory usage threshold, requesting at least one of the application programs to limit its use of memory; at a second memory usage threshold that is more critical than the first memory usage threshold, requesting at least one of the application programs to close itself; at a third memory usage threshold that is more critical than the first and second memory usage thresholds, terminating at least one of the application programs without allowing its further execution; and reclaiming unused stack memory and discarding read-only memory before requesting at least one of the application programs to close itself and before terminating at least one of the application programs", which is not taught, disclosed, suggested or motivated by the cited references, alone or in any proper combination.

IM does not provide any teaching, disclosure, suggestion or motivation for requesting an application program to limit memory usage at a first memory usage threshold, as affirmatively recited in claim 17. IM also does not provide any teaching, disclosure, suggestion or motivation for requesting an application to close itself at a second memory usage threshold more critical than the first memory usage threshold. IM also does not provide any teaching, disclosure, suggestion or motivation for terminating at least one of the application programs without allowing its further execution at a third memory usage threshold more critical than the first or second memory usage thresholds, as recited in claim 17.

This application was filed on May 6, 1997, and a continuing prosecution application was filed in this application on September 14, 2000. Draves was filed on Feb. 6, 1997 and issued on September 7, 1999 (see, e.g., cover sheet). As such, Draves can only qualify as prior art under the timing provisions of 35 U.S.C. §102(e).

Draves is assigned to Microsoft Corporation of Redmond, Washington (cover sheet), as is the present application (assignment recorded 10/27/97). As such, Draves is not available as prior art under 35 U.S.C. 103, as is discussed in more detail in MPEP §706.02(l)(1), entitled "Rejections Under 35 U.S.C. 102(e)/103; 35 U.S.C. 103(c)". This MPEP section cites 35 U.S.C. 103(c):

35 U.S.C. 103. Conditions for patentability; non-obvious subject matter.

(c) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

More specifically, this MPEP section states that "Effective November 29, 1999, subject matter which was prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention "were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." This change to 35 U.S.C. 103(c) applies to all utility, design and plant patent applications filed on or after November 29, 1999, including

continuing applications filed under 37 CFR 1.53(b), continued prosecution application filed under 37 CFR 1.53(d), and reissues."

Accordingly, Draves is not available as prior art under 35 U.S.C. §103 with respect to this application, and, as such, the rejection of claims 7, 14, 16-19, 22 and 29 is prima facie defective. Additionally, no other grounds for rejection have been lodged regarding claims 7, 14, 16-19, 22 and 29. Accordingly, in the event that the Examiner still finds such claims to be not allowable, a subsequent non-Final action must be made with different grounds for rejection.

Claim 23 recites "A computer system comprising: a processor; an operating system that is executable by the processor and that utilizes the physical memory; a virtual memory system that includes physical memory but does not include secondary storage; one or more application programs that utilize the virtual memory system; wherein the operating system is configured to perform the following acts: monitoring physical memory usage; and at increasingly critical physical memory usage thresholds, wielding increasing control over said one or more application programs to reduce physical memory usage", which is not taught, disclosed, suggested or motivated by the cited references, alone or in any proper combination.

As noted above, IM fails to describe any operating system and instead describes an application. Culbert fails to cure the deficiencies of IM. The Office Action states (p. 6) that QuickDraw GX is referenced at col. 4, lines 56-67. Applicant finds no mention of QuickDraw in the cited passage. Passing mention of QuickDraw appears at col. 7, lines 18-30, but there is no corresponding mention of secondary storage in this passage.

Neither IM nor Culbert describe any operating system configured to monitor memory usage, as recited in claim 23. Neither IM nor Culbert describe any operating system configured to wield control over any application program to reduce physical memory usage, as recited in claim 23. As a result, it is inconceivable that combining the teachings of these references could provide the subject matter recited in claim 23.

Claim 40 recites "An application program that resides in a computer-readable memory for execution by a processor in conjunction with an operating system, the application program having a message loop that receives messages from an operating system, the application program being responsive to a particular message received through its message loop to reduce its current use of memory", which is not taught, disclosed, suggested or motivated by the cited references.

Berstis describes a "method and apparatus to intercept and process error messages in a data processing system" (Title). Berstis states (Abstract) that "A process in a data processing system for handling messages received in a message queue in a message handling process for a graphical user interface. In response to receiving a message in the queue, a determination is made as to whether the error is a message. In response to an identification of an error message, that message is intercepted before processing by the message handling process. A determination is made as to whether a corrective action is required in response to the error message and as to whether the error message should be reformatted. If corrective action is required, that action is initiated by the process. Additionally, if the message should be reformatted, the process then reformats the message and returns the message to the message handling process for further processing."

As noted above, IM fails to teach an application program receiving messages from an operating system. Berstis is directed to an error messaging system for use with computers using IBM-compatible operating systems (col. 5, lines 10-16).

Berstis is silent with respect to error, or any other, messages involving memory. There is no teaching or disclosure in Berstis regarding or IM regarding any "application program being responsive to a particular message received through its message loop to reduce its current use of memory", as affirmatively recited in claim 40. As such, the proposed combination fails to provide the subject matter recited in claim 40. Additionally, the Office Action states (p. 7) that the motivation to combine the teachings of IM and Berstis comprises "?". Clarification is requested.

The Office Action fails to establish a prima facie case of obviousness for any of the unpatentability rejections. Applicant notes that criteria for such are set forth in MPEP §2143, entitled "Basic Requirements of a Prima Facie Case of Obviousness" (see also MPEP §706.02(j)).

This MPEP section states that "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." No motivation or guidance has been identified in the references by the Office Action to modify the disclosure of the reference.

This MPEP section also states that "Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when



combined) must teach or suggest all the claim limitations." As noted above, the references fail to teach or suggest all of the recitations of Applicant's independent claims, and particularly fail to provide any teaching or disclosure of the subject matter of any of independent claims 10, 17, 23, 32, 37 or 40. As such, there can be no reasonable expectation of success.

This MPEP section further states that "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

This requirement is also described in MPEP §2143.01, entitled "Suggestion or Motivation To Modify the References." This MPEP portion includes a subsection stating that "THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION".

Inasmuch as the references fail to provide the subject matter of the independent claims, it is inconceivable that they could suggest the desirability of this subject matter. As a result, the rejection fails all prongs of the test set forth in the MPEP for a prima facie finding of unpatentability. For at least these reasons, the unpatentability rejections should be withdrawn, and Applicant's claims should be allowed.

**New Claims:**


New claims 41-50 are supported at least by text appearing at p. 4, line 19 through p. 17, line 20 of the application as originally filed. No new matter is added by new claims 41-50. New claims 41-50 distinguish over the art of record and are allowable.

**Conclusion:**

Claims 1-50 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. Should any matter in this case remain unresolved, the undersigned attorney respectfully requests a telephone conference with the Examiner to resolve any such outstanding matter.

Respectfully Submitted,

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